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5 January 1959

MEMORANDUM FOR THE RECORD

SUBJECT: RB-69A Photo System

1. As a result of extensive testing during the current phase of the RB-69 OST the advantages and disadvantages of utilizing strobe type light source for the camera system was investigated. Two (2) such types were tested extensively and the pros and cons of each are hereby submitted.

F2A2E.G.G.

Weight		100 lbs per pod		95 lbs. per pod
Approx. Cost	25X1A	██████████ for sufficient operational units.	25X1A	██████████ for sufficient operational units.
Power		24 KVA		22 KVA
Safety		Bleed-off for condenser		No bleed-off for condenser
Resolution of photos		8 lines/mm		8 lines/mm
Reliability		A high degree of reliability.		Purely an experimental item which has room for improvement.
Maintenance		Veritably easy to maintain.		More difficult to maintain/ ("Bread board model").
Available and spare parts		Immediately		Questionable-estimate approximately one year.
Charging rate		Sufficient, not a limiting factor.		Faster than F2A2
Light output	25X1A	Although the ██████████ employs the use of only three (3) lamps compared to six (6) utilized by the E.G.G. pods, density of the negatives obtained were equal in both units so that the light output for all practical purposes could be considered sufficient by employing the ██████████ for qualitative photo capability.		
	25X1A			

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F2A2

E.G.G.

Illumination of the ground pattern.

Uneven over the fan of three cameras but could be rectified by trial and error tilt of the reflectors.

Evenness of the illumination pattern is more prevalent, as this system affords the opportunity of having two (2) lights illuminate each ground pattern of the camera's view angle.

Disadvantage

If a lamp failure should occur during an operational mission it is reasonable to assume that successful photography will not be obtained that is taken by the camera that has its' ground pattern illuminated by the lamp in question.

In the event of any particular lamp failure during an operational mission chances of successful photography remain excellent because of two (2) lamps illuminating each ground view pattern of the camera's.

Disadvantage

All weather capabilities of the condensers

The attempt to have the "bread board model" constructed to be as light in weight as possible resulted in the use of electrolytic condensers which have to be prevented from freezing. This constitutes serious disadvantages during operational programs.

2. The amount of lights employed with the cameras in this system are relatively unimportant, but how they are applied is the most dominating factor. Although from the above comparison it appears that the E. G. G. pods afford twice as much light plus more uniformity at the obliques, the many problems associated with production model E. G. G. pods are not considered by the undersigned worth the gain. It also should be noted that the E. G. G. units do not meet military specifications, although this is not a very important factor.

OK 3. In view of all of the aforementioned it is recommended by the undersigned that immediate action be taken to adapt F2A2 units as the illumination source commensurate with the camera system employed in the RB-69 and that the continuous light pods be no longer utilized. The above recommendation is made with the following reservations:

a. Field units should be informed that a continual developing program be instigated to improve the quality of the photography to be obtained. As an example:

✓ (1) Exposure tables should be kept to arrive at more suitable altitudes for operational use.

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✓ (2) Better developing techniques constitute a factor. Due to time limitations this was not able to be accomplished during the current phase of the test.

✓ (3) A spectral analysis of the light output of the lamps should be made and investigation of a more suitable film to be employed with the lamps be initiated.

✓ (4) An experiment should be conducted to utilize faster shutter speeds than the one currently employed, to lessen the IMC smear created by objects on the ground that provide their own illumination.

OK (5) Investigation be made to employ specially constructed reflectors with the F2A2 units to give more useable coverage of the oblique camera.

25X1A

OK 4. It is further recommended that appropriate action be taken with [redacted] to engineer an adjustable bracket for the F2A2 mounts so that when the units are inserted in the tip pods they can be moved laterally in addition to the fore and aft mode solely available now.

5. It is further recommended that action be initiated through TSS and AMSD resources to coordinate the following:

OK a. Utilize as many of the existing tip pods as available at the present time by returning the E.G.G. "guts" to TSS and extracting the continuous light "guts" from the other pods.

OK b. Immediate action be taken to re-focus all existing lenses for accommodation of the spectral output of the F2A2 lamps.

OK - Direct
Not Thru TSS c. Immediate action be instigated to procure junction boxes through TSS contacts, for synchronization between the cameras and flash units.

OK d. The availability of the F2A2 lamps has been investigated and it is recommended that immediate action be instigated to procure same for operational use.

OK 6. It is further recommended that if accepted as proposed above, Operational personnel in the field units be instructed on appropriate employment of the new photo system.

7. A breakdown of the existing inventory of pods that could be utilized for the above mentioned proposal follows:

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Six (6) pods presently located at Eglin (two (2) F2A2, two (2) E.G.G., two (2) continuous lights). The two (2) pods containing the E.G.G. could be utilized as mentioned above, as could the two (2) continuous light pods. This will leave four (4) empty pods at the engineering point. It is estimated that two (2) F2A2 pods be constructed for each aircraft. It will mean a total of eight (8) pods to be constructed. It also should be pointed out that there are a total of eight (8) pods; four (4) in each area, located in the field now, that contain continuous lights.

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It is recommended that an investigation be made to determine whether or not it would be feasible to purchase new pods for construction of the recommended F2A2 light source or could the continuous light pods be salvaged for same. It could be feasible to pull only one (1) set of continuous light pods from each overseas area, utilize the four (4) pods obtained from Eglin, thus leaving a capability in each overseas area of the continuous light mode also.

8. It is further recommended that immediate action be taken to procure 17 each F2A2 units i.e., three (3) for each aircraft is needed. The prototype aircraft has three (3) so we need 12 more units for the other aircraft plus one (1) spare for each aircraft, making a total of 17.

9. The camera system in the field will have to be synchronized to the flash units. It is recommended that action be taken through TSS to check the feasibility of scheduling and programing of these units to the [REDACTED] for overall calibration.

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25X1A

MAJOR

USAF

ATTACHMENT: Evaluation made by this Agency of the photography obtained during the current testing of all of the above.

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No point
in leaving
continuous light
units. If they
are good - Use
them - If
No Good -
get rid of
them

Do through
OL/PD -
Not TSS.
Roz